CLAIMS

I claim:

1. A method of delivering notes generally one at a time from a stack of notes, comprising:

(a) engaging an end note bounding a stack of notes with a movable engaging portion, wherein the movable engaging portion is in supporting connection with and movable relative to a rotatable picking member, wherein the picking member generally rotates about a first axis;

(b) rotating the picking member about the first axis in a picking direction with the engaging portion in engagement with the end note, wherein the engaging portion generally does not move relative to the end note as the end note moves relative to the stack;

(c) during execution of step (b) moving the engaging portion radially outward relative to the first axis as the picking member moves relative to the engaging portion, wherein additional force tending to move the end note from the stack is applied with increasing radially outward movement of the engaging portion.

2. The method according to claim 1, wherein the picking member is in generally abutting relation with a stripping member, wherein the stripping member generally prevents all but the end note from moving from the stack upon rotation of the picking member in the picking direction, and further comprising:

(d) moving the end note between the picking member and the stripping member as the end note moves relative to the stack.

3. The method according to claim 2 and further comprising:

(e) moving the engaging portion radially inward relative to the first axis prior to the engaging portion moving adjacent to the stripping member as the picking member rotates in the picking direction.

4. The method according to claim 3 and further comprising a cam surface, and wherein step (e) comprises moving the engaging surface radially inward by operative engagement of the engaging portion with the cam surface.

5. The method according to claim 3 and further comprising a movable member, wherein the movable member is movably supported on the picking member through a pivot connection, and wherein the engaging portion is supported on the movable member, and wherein in step (c) the movable member rotates about the pivot connection in a first direction, and

wherein in step (e) the movable member rotates about the pivot connection in a second direction opposed of the first direction.

6. The method according to claim 5 and further comprising a cam surface, and a cam follower portion in operative connection with the movable member, and wherein in step (e) the movable member is caused to rotate in the second direction responsive to engagement of the cam follower portion with the cam surface.

7. The method according to claim 1 wherein in step (c) the engaging portion moves radially outward responsive to angular movement of the picking member in the picking direction exceeding angular movement of the engaging portion in the picking direction.

8. The method according to claim 7 wherein in step (c) the engaging portion moves further radially outward responsive to an increasing difference between angular movement of the picking member and the angular movement of the engaging portion.

9. The method according to claim 7 and further comprising a stripping member in generally abutting relation of the picking member, wherein the end note moves between the picking member and the stripping member as the end note moves from the stack, and further comprising:

(d) moving the engaging portion radially inward relative to the first axis prior to the picking member rotating sufficiently in the picking direction to cause the engaging portion to engage the stripping member.

10. The method according to claim 9 and further comprising a movable member in movably supported connection with the picking member, wherein the engaging portion is supported on the movable member, and wherein the movable member is in operative connection with a cam follower portion, and wherein in step (d) the engaging portion is moved radially inward responsive to engagement of the cam follower portion with the cam surface.

11. The method according to claim 10 wherein the movable member is supported on the picking member through a pivot connection, and wherein in step (c) when the engaging portion moves radially outward the movable member rotates about the pivot connection in a first direction, and wherein in step (d) when the engaging portion moves radially inward the movable member rotates about the pivot connection in a second direction opposed of the first direction.

12. The method according to claim 10 wherein the pivot connection is disposed on the movable member intermediate of the engaging portion and the cam follower portion, and wherein in step (d) the cam follower portion moves radially outward relative to the first axis.

13. The method according to claim 1 wherein the picking member comprises a generally cylindrical portion, and wherein the engaging portion includes a generally arcuate

segment of the cylindrical portion, and wherein in step (c) the arcuate segment moves radially outward.

14. The method according to claim 1 wherein the picking member comprises a plurality of generally cylindrical portions, each one of the plurality of cylindrical portions in supporting connection with a shaft, wherein the shaft extends along the first axis, and wherein each one of the cylindrical portions is disposed away from each of the other cylindrical portions along the axis, and wherein the engaging portion comprises generally arcuate segments on each of a plurality of cylindrical portions, and wherein in step (c) each of the plurality of generally arcuate segments move radially outward.

15. The method according to claim 13 wherein the cylindrical portion has an outer bounding surface extending generally parallel to the first axis and having a width, and wherein the arcuate segment extends less than the width of the outer bounding surface, and wherein in step (c) the arcuate segment moves radially outward relative to the outer bounding surface.

16. The method according to claim 13, wherein the cylindrical portion comprises a web portion extending generally perpendicular to the first axis, and wherein the segment is in supporting connection with the cylindrical portion through the web portion, and wherein in step (c) the segment moves relative to the web portion.

17. The method according to claim 16 and further comprising a movable member, wherein the segment is in supporting connection with the movable member, and wherein the movable member is disposed on a first longitudinal side of the web portion, and further comprising a cam surface disposed on a second longitudinal side of the web portion, and further comprising an opening through the web portion and a cam follower portion in operative connection with the movable member through the opening, and further comprising:

(d) moving the segment radially inward responsive to engagement of the cam follower portion with the cam surface as the cylindrical portion rotates in the picking direction about the first axis.

18. The method according to claim 17 and further comprising a stripping member positioned in generally abutting relation with the cylindrical portion, wherein the end note moving from the stack passes between the cylindrical portion and the stripping member, and wherein in step (d) the segment is moved radially inward before engaging the stripping member.

19. The method according to claim 17 wherein the cylindrical portion is in operative connection with a shaft, wherein the shaft rotates about the first axis, and prior to step (d) comprising engaging a cam including a cam surface in supporting connection with the shaft.

20. The method according to claim 1 and further comprising an automated banking machine including a drive, and prior to step (a) further comprising:

(d) operatively engaging the picking member and the drive in the automated banking machine.

21. The method according to claim 20 and prior to step (d) further comprising:

removing a used picking member from engagement with the drive in the automated banking machine.

22. A method of picking notes generally one at a time from a stack of notes in an automated banking machine, comprising:

(a) engaging an end note bounding the stack with an engaging portion operatively connected to a picking member;

(b) applying increasing engaging force between the engaging portion and the end note responsive to the end note not moving relative to the stack responsive to movement of the picking member.

23. The method according to claim 22 wherein step (b) comprises moving the engaging portion relative to the picking member to apply increased engaging force to the end note.

24. The method according to claim 23 and further comprising rotating the picking member about a first axis in a picking direction, and wherein step (b) comprises moving the engaging portion radially outward relative to the first axis.

25. The method according to claim 24 wherein step (b) comprises moving the engaging portion radially outward responsive to angular movement of the picking member in the picking direction exceeding angular movement of the engaging portion in the picking direction.

26. The method according to claim 23 and further comprising a stripping member in generally abutting relation with the picking member, wherein the end note moving from the stack passes between the picking member and the stripping member, and wherein in step (b) the engaging portion moves relative to the picking member in a first direction, and further comprising the step of moving the engaging portion in a second direction opposed of the first direction responsive to the engaging portion approaching the stripping member during movement of the picking member.

27. The method according to claim 22 and further comprising:

(c) decreasing engaging force between the engaging portion and the end note as the end note is moved past a stripping member.

28. Apparatus operative to carry out the method steps recited in claim 22.

29. The apparatus according to claim 28 wherein the engaging portion is movably mounted in supporting connection with the picking member.

30. The apparatus according to claim 28 and further comprising a movable member, wherein the movable member is movably mounted in supporting connection with the picking member wherein the engaging portion is in supporting connection with the movable member.

31. The apparatus according to claim 30 wherein the movable member is movably mounted in supporting connection with the picking member through a pivot connection.

32. The apparatus according to claim 31 wherein the picking member rotates about a first axis in moving the end note from the stack, and wherein the pivot connection is disposed radially from the first axis.

33. The apparatus according to claim 31 wherein the movable member is in operative connection with a cam follower.

34. The apparatus according to claim 33 wherein the pivot connection is disposed intermediate of the engaging portion and the cam follower.

35. A method for improving the picking of notes in an automated banking machine including a note picking mechanism having a rotatable, generally cylindrical picking member

engaging a stack of notes, and a stripping member in generally abutting relation with the picking member, wherein the picking member generally pulls an end note from the stack with each rotation of the picking member and wherein the picking member generally prevents all but the end note from passing between the picking member and the stripping member, the method comprising:

(a) disengaging a picking member from the automated banking machine, wherein the picking member disengaged has a sheet engaging portion which is generally entirely fixed relative to the picking member;

(b) installing an alternate picking member in the automated banking machine, wherein the sheet engaging portion of the alternate picking member includes a movable engaging portion, wherein the movable engaging portion is movable relative to the alternate picking member, and wherein the engaging portion moves further radially outward relative to the alternate picking member responsive to movement of the alternate picking member urging movement of the end note without achieving corresponding movement by the end note.

36. The method according to claim 35 wherein the alternate picking member installed in step (b) includes in connection therewith a cam surface and a cam follower portion, and

wherein the cam surface and cam follower portion are operative to cause the engaging portion to move radially inward prior to the engaging portion rotating to engage the stripping member.

37. The method according to claim 35 wherein the alternate picking member includes three cylindrical portions disposed from one another along a shaft, and wherein two outboard cylindrical portions each include a movable engaging portion.